

MEET WITH MODULO MATHEMATICA

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Lenin Richardson. Ways of Euclidean Algorithmic Thinking. J Pure Applied Mathematics. 2021; 5(1):1-1.

Modulo Arithmetic is an unusually versatile tool discovered by Gauss in 1800s. Two numbers a and b are said to be equal or congruent modulo N if $(a-b)$, i.e. if their difference is exactly divisible by N . Usually (and on this page) a, b , are nonnegative and N a positive integer. We write $a \equiv b \pmod{N}$.

RESIDUE CLASSES:

Resultant outputs are often named as residues; accordingly, $[a]$'s are also known as the residue classes.

Modulo Maths is a special type of arithmetic that involves only integers. This goal of this article is to explain the basics of modular arithmetic while presenting a progression of more difficult and more interesting problems that are easily solved using modular arithmetic.

EXPONENTIAL MODULO:

Exponents are just repeated multiplication, makes sense that modular arithmetic would make many problems involving exponentials easier.

In fact, the advantage in computation is even larger and we explore it a great deal more in the intermediate modulo maths research.

MODULUS APPLICATIONS:

Modulo Maths is an extremely flexible problem solving tool and its applicable in the fields of:

- ✓ Div - Divisible congruences
- ✓ Line - Linearity criteria

Divisibility criteria, ways of telling whether one number divides another without actually carrying the division through. Implicit in this concept is the assumption that the criteria in question affords a simpler way than the outright division to answer the question of divisibility.

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